



Sunspot Index and Long-term Solar Observations

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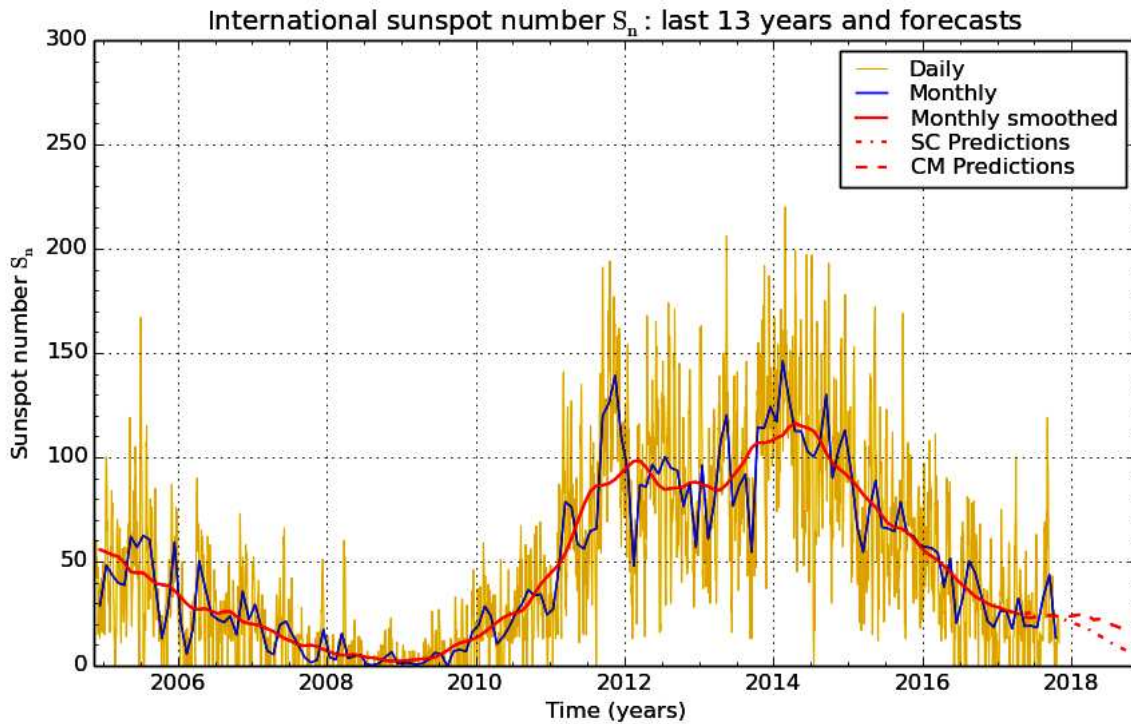
SUNSPOT BULLETIN

2017 n° 10

Provisional international and normalized hemispheric daily sunspot numbers for October 2017

Computed at the *Royal Observatory of Belgium* using observations from an international network with the *Specola Solare Ticinese Locarno* as reference station.

Date	R' _I	R' _N	R' _S
1	36	14	22
2	24	13	11
3	25	14	11
4	27	16	11
5	26	15	11
6	23	12	11
7	11	11	0
8	11	11	0
9	0	0	0
10	0	0	0
11	0	0	0
12	0	0	0
13	0	0	0
14	11	11	0
15	0	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	11	0	11
22	11	0	11
23	23	12	11
24	23	12	11
25	23	12	11
26	23	12	11
27	23	12	11
28	24	12	12
29	23	11	12
30	21	11	10
31	11	11	0
Monthly mean	13.2	7.2	6.0
Cooperating stations	81	65	65



SILSO graphics (<http://sidc.be/silso>) Royal Observatory of Belgium 2017 November 1

Predictions of the monthly smoothed Sunspot Number
 using the last provisional value, calculated for April 2017: 24.9 ($\pm 5\%$)

	SM	CM		SM	CM		SM	CM
2017 May	25	23	2017 Nov	22	24	2018 May	15	22
Jun	25	23	Dec	21	24	Jun	13	21
Jul	26	24	2018 Jan	20	24	Jul	11	20
Aug	25	24	Feb	19	25	Aug	9	19
Sep	24	24	Mar	18	25	Sep	8	18
Oct	23	24	Apr	16	22	Oct	7	17

SM : SIDC classical method : based on an interpolation of Waldmeier's standard curves. The estimated error ranges from 7% (first month) to 35% (last month)

CM : Combined method : the combined method is a regression technique coupling a dynamo-based estimator with Waldmeier's method of standard curves, designed by K. Denkmayr.

Ref.: K. Denkmayr, P. Cugnon, 1997 : "About Sunspot Number Medium-Term Predictions", in "Solar-Terrestrial Prediction Workshop V", eds. G.Heckman et al., Hiraiso Solar Terrestrial Research Center, Japan, 103.

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Summary of the URSIGRAMs from S.I.D.C.

Date	R _i	PPSI	600	2800	COS	SFI	XI	Ak
30	40	77	-	89	////	1	0/0	18
1	36	53	-	86	////	0	0/0	16
2	24	45	-	86	////	0	0/0	5
3	25	45	-	86	////	0	0/0	7
4	27	37	-	87	////	0	0/0	7
5	26	23	-	85	////	0	0/0	8
6	23	19	-	84	////	2	0/0	10
7	11	3	-	80	////	0	0/0	4
8	11	1	-	77	////	0	0/0	4
9	0	0	-	72	////	0	0/0	3
10	0	0	-	71	////	0	0/0	3
11	0	0	-	70	////	0	0/0	31
12	0	0	-	70	////	0	0/0	30
13	0	0	-	70	////	0	0/0	33
14	11	0	-	69	////	0	0/0	29
15	0	1	-	70	////	0	0/0	22
16	0	1	-	71	////	0	0/0	11
17	0	0	-	70	////	0	0/0	5
18	0	0	-	73	////	0	0/0	7
19	0	0	-	73	////	0	0/0	14
20	0	0	-	76	////	0	0/0	10
21	11	0	-	77	////	0	0/0	12
22	11	2	-	77	////	0	0/0	6
23	23	5	-	78	////	0	0/0	6
24	23	6	-	78	////	0	0/0	28
25	23	7	-	79	////	0	0/0	23
26	23	10	-	77	////	0	0/0	20
27	23	7	-	76	////	0	0/0	5
28	24	3	-	75	////	0	0/0	6
29	23	4	-	75	////	0	0/0	3
30	21	3	-	75	////	0	0/0	2
31	11	1	-	75	////	///	///	2

R_i : provisional international sunspot numbers from the S.I.D.C.

PPSI : prompt photometric sunspot index from the S.I.D.C. in 10^{-5} w/m² : the quantity to be subtracted from the mean solar constant to account for the sunspot contribution.

600 : 600 Mhz solar flux from the station at Humain (Belgium).

2800 : 2800 Mhz solar flux from Ottawa (origin : Ursigrams - UGEOI). The 10.7cm Flux data are a service of the National Research Council of Canada.

COS : thousands of the cosmic ray counts (origin : Ursigrams - UCOSE Terre Adélie).

SFI : Solar Flare Index from the S.I.D.C. (origin: Ursigrams - UGEOR, evaluation : $1 \times S_n + 10 \times "1" + 100 \times ">1"$).

XI : X-flares index from the Ursigrams (M-flares/X-flares) (origin: Ursigrams - UGEOR, UGEOI).

Ak : geomagnetic index from Wingst, Germany (origin: Ursigrams).

SOLAR PHYSICS DEPARTMENT

UCCLE DAILY PROVISIONAL RELATIVE SUNSPOT NUMBERS FOR OCTOBER 2017

DATE	UT	NUMBER		RELATIVE SUNSPOT NUMBERS			PPSI 10-5	QUAL	OBS	
		OF GROUPS	OF SPOTS	TOTAL	NORTH	SOUTH				CENTRAL
2	1205	2	4	24	13	11	13	32.1	2	BB
3	810	2	5	25	13	12	13	29.5	3	BB
5	1130	2	8	28	17	11	0	17.2	2	OB
6	1145	2	5	25	14	11	0	10.7	2	OB
8	930	0	0	0	0	0	0	0.0	1	LL
9	810	0	0	0	0	0	0	0.0	3	BB
10	755	0	0	0	0	0	0	0.0	3	FC
12	800	0	0	0	0	0	0	0.0	3	FC
13	1025	0	0	0	0	0	0	0.0	3	FC
14	810	1	1	11	11	0	11	0.4	3	FC
15	1540	1	3	13	13	0	13	1.3	4	OP
16	810	0	0	0	0	0	0	0.0	3	BB
17	825	0	0	0	0	0	0	0.0	1	BB
18	815	0	0	0	0	0	0	0.0	2	BB
19	830	0	0	0	0	0	0	0.0	2	OL
21	1100	0	0	0	0	0	0	0.0	2	AM
22	945	1	1	11	0	11	0	0.6	1	LL
25	845	2	3	23	12	11	11	3.2	3	OL
27	920	2	4	24	13	11	24	4.3	3	OB
29	1210	2	4	24	11	13	11	7.3	2	OB
30	940	2	2	22	11	11	11	2.4	2	BB

The relative mean sunspot number is 11.0.

NORMALISED UCCLE OBSERVATIONAL SUNSPOT NUMBERS $U'=K'U$ FOR OCTOBER 2017

$K' = 1.196 (*)$

1	***	7	***	13	0	19	0	25	28
2	29	8	0	14	13	20	***	26	***
3	30	9	0	15	16	21	0	27	29
4	***	10	0	16	0	22	13	28	***
5	33	11	***	17	0	23	***	29	29
6	30	12	0	18	0	24	***	30	26
								31	***

The normalised relative monthly mean sunspot number is 13.

(*) K' is the mean of the monthly K' for the last five years.

The Sun has been observed 21 days on 31 possible.